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The genus *Monocerotesa* Wehrli (Geometridae, Ennominae) in Sumatra, with description of one new species

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Abstract Six species of the genus *Monocerotesa* are recorded from Sumatra. *M. sumatrana* is described as a new species, and the others are newly recorded.

Key words *Monocerotesa*, Ennominae, Geometrinae, Sumatra, new species.

The genus *Monocerotesa* was established for *Chiasmia strigata* Warren, 1893 from India by Wehrli (1937). About twenty species have been placed in *Monocerotesa* (Parsons *et al.*, 1999), and they are mainly distributed in the Oriental region. Holloway (1994) reported four species from Borneo, two of which were described as new to science. In the same paper, he included Sumatra in the geographical range of *M. minuta* (Warren), but indicated some doubt by adding a question mark. Therefore there is as yet no certain record of species of *Monocerotesa* from Sumatra.

I have examined many specimens of the genus collected in Sumatra, especially by the late Dr E. W. Diehl, and checked all available type specimens at the Natural History Museum to confirm their identification. As a result, six species of *Monocerotesa* were found from Sumatra, including one new species.

Detailed notes on the localities of collecting sites in Sumatra were given by Diehl (1982, 1997), Kobes (1985, 1992) and Schintlmeister (1994).

The following acronyms are used to indicate the location of the specimens. BMNH: The Natural History Museum, London, UK. MS: Manfred Sommerer collection, Munich, Germany. NIAES: Natural Resources Inventory Center, National Institute for Agro-Environmental Sciences, Tsukuba, Japan. NSMT: National Science Museum, Tokyo. ZFMK: Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany. ZSM: Zoologische Staatssammlung, Munich, Germany.

Monocerotesa Wehrli, 1937

Type-species: *Chiasmia strigata* Warren, 1893.

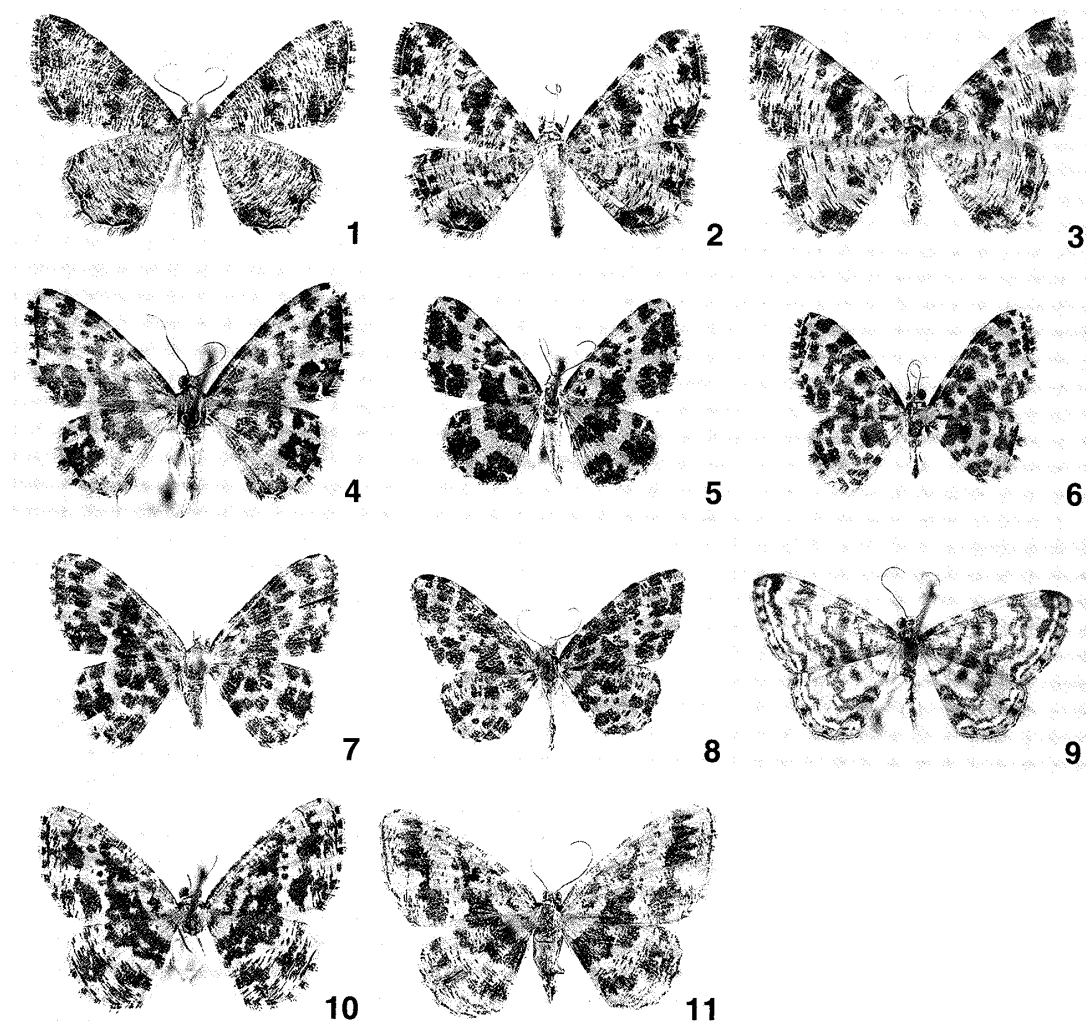
Monocerotesa commissa (Prout), **stat. & comb. nov.** (Figs 2–3)

Chiasmia strigata commissa Prout, 1932: 80.

Monocerotesa strigata: Holloway, 1994: 270 (*nec* Warren, 1893).

This species was described by Prout (1932) from Borneo, based on one “female” taken at Mt Kinabalu, as a subspecies of *strigata* from India. The holotype preserved in BMNH, however, is not a female, but a male specimen. I have examined the genitalia of the holotype, and find that it should be treated as a distinct species. *M. strigata* was described from India as *Chiasmia* by Warren (1893: 412, pl. 3: 22).

Similar to *strigata* (Fig. 1), but somewhat smaller in size, both wings paler, less strongly



Figs 1–11. *Monocerotesa* spp. 1. *M. strigata* (Warren), ♂, Nepal. 2–3. *M. comissa* (Prout). 2. ♂, Sulawesi. 3. ♀, Sumatra. 4–5. *M. minuta* (Warren). 4. ♂, Sumatra. 5. ♀, Borneo. 6–7. *M. proximesta* Holloway. 6. ♂, Sumatra. 7. ♀, Borneo. 8. *M. hypomoesta* (Prout), ♂, Sumatra. 9. *M. locoscripta* Holloway, ♂, Sumatra. 10–11. *M. sumatrana* sp. nov. 10. ♂, holotype, Sumatra. 11. ♀, paratype, Sumatra.

suffused with ochreous, medial black band more developed on forewing. However, individual variation is found in wing colour and maculation to some extent in both species, so it is necessary to examine the genitalia, which are distinct in both sexes.

Male genitalia (Fig. 13). Similar to those of *strigata* (Fig. 12), but different from them as follows. Uncus shorter and stouter, slender dorsal process shorter; valva wider, especially at apical part, dorsal and ventral margins more rounded, the distal spur-like process arising more apically, the saccular spur shorter and less sclerotized, the apical process with much longer setae. Also illustrated by Holloway (1994, fig. 582, as *strigata*).

Female genitalia (Fig. 19). Similar to those of *strigata* in bursa copulatrix, but different from them in the shape of the sterigma: the medial two-pronged sclerotized part and its surrounding narrow band developed in *strigata*, but lacking in this species. The female genitalia shown by Holloway (1994, fig. 577) were not those of *comissa*, but those of *strigata* based on the female syntype from Khasia in India (BMNH, slide No. 16466).

Type material examined. Holotype. ♂, “B. N. Borneo, Mt. Kinabalu, Lumu Lumu, 5500 ft., April 8th 1929/Type/*Chiasmia strigata commissa* Prout, type, ♂ /Presented by F.M.S.Museum. B.M.1935-543/Geometridae genitalia slide No. 21329”, BMNH. Genitalia checked. For confirmation of the identification, the type material of *Chiasmia strigata* were examined. Syntypes. 1 ♂, “Sikkim, O. Möller., 7000 89/Collectio H. J. Elwes/Rothschild Bequest B.M.1939-1/Geometridae genitalia slide No. 16370 ♂”, BMNH. Genitalia checked. 1 ♀, “Khasis Nat. Coll./Collectio H. J. Elwes/Rothschild Bequest B.M.1939-1/Geometridae genitalia slide No. 16466 ♀”, BMNH. Genitalia checked.

Material examined. Sumatra. Holzweg II 1,050 m, 1 ♀, 18. vi. 1985 (E. W. Diehl), Holzweg III 1,200 m, 1 ♂, 25–26. vii. 1985 (R. Sato), NIAES. Deli, Dolok Merangir Umg., 1 ♂, xii. 1967–v. 1968 (E. W. Diehl), ZSM. Zwischen Siantar u. Prapat 1,000–1,200 m, 1 ♀, 25. vii. 1976 (E. W. Diehl), MS. Sulawesi. Puncak, 27 km W. Palopo, 1 ♂, 10–19. v. 1984 (A. Schintlmeister), NIAES.

Geographical range. Borneo, Sumatra, Sulawesi.

***Monocerotesa minuta* (Warren) (Figs 4–5)**

Chiasmia minuta Warren, 1905: 433.

Monocerotesa minuta: Holloway, 1994: 271.

This species was described by Warren (1905) on one male from Bilit in North Borneo. Holloway (1994) redescribed it with illustrations of the male and its genitalia. I examined three males collected from Sumatra, though Holloway (1994) was dubious about the distribution in Sumatra.

Male genitalia (Fig. 14): Holloway (1994, fig. 584). Female genitalia (Fig. 20): illustrated here for the first time.

Type material examined. Holotype. ♂, “Type/*Chiasmia minuta* Warr., type, ♂/Bilit, N. Borneo, July 1899, (D. Cator)/Rothschild Bequest B.M.1939-1/Geometridae genitalia slide No. 16470 ♂”, BMNH. Genitalia checked.

Material examined. Sumatra. Dolok Merangir, 1 ♂, 18. ii–11. iv. 1972 (Roesler & Küppers), ZFMK. Holzweg II 1,050 m, 1 ♂, 13. vii. 1990, Gunung Malayu, vic Aek Tarum 150 m, 1 ♂, 16. i. 1983 (E. W. Diehl), MS. Borneo. Sabah, Rte Lahad Datu, Darum Valley 300 m, 1 ♀, 15. iv. 1993 (J. Devecis), in Herbulot Collection, ZSM.

Geographical range. Borneo, Sumatra.

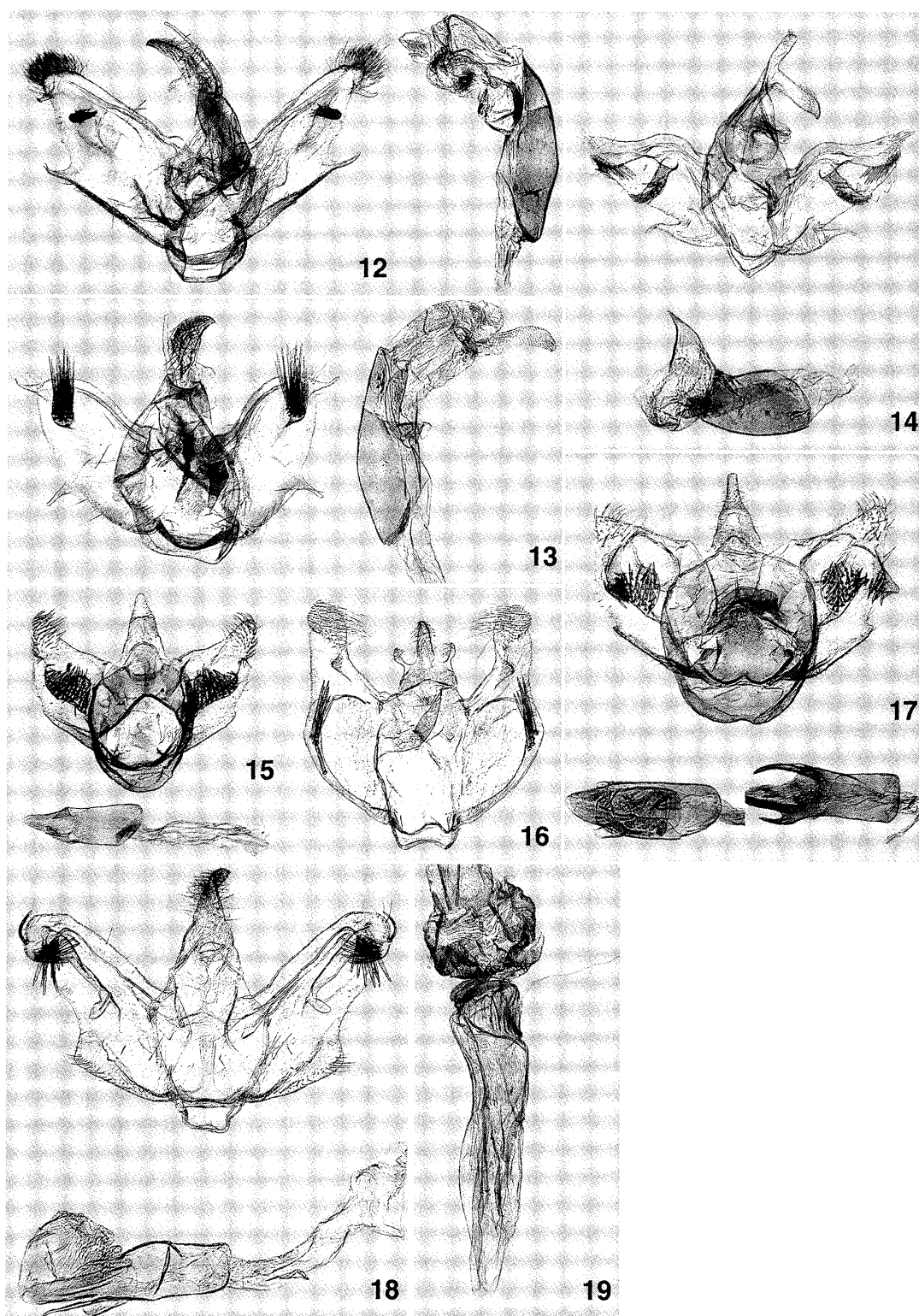
***Monocerotesa proximesta* Holloway (Figs 6–7)**

Monocerotesa proximesta Holloway, 1994: 271.

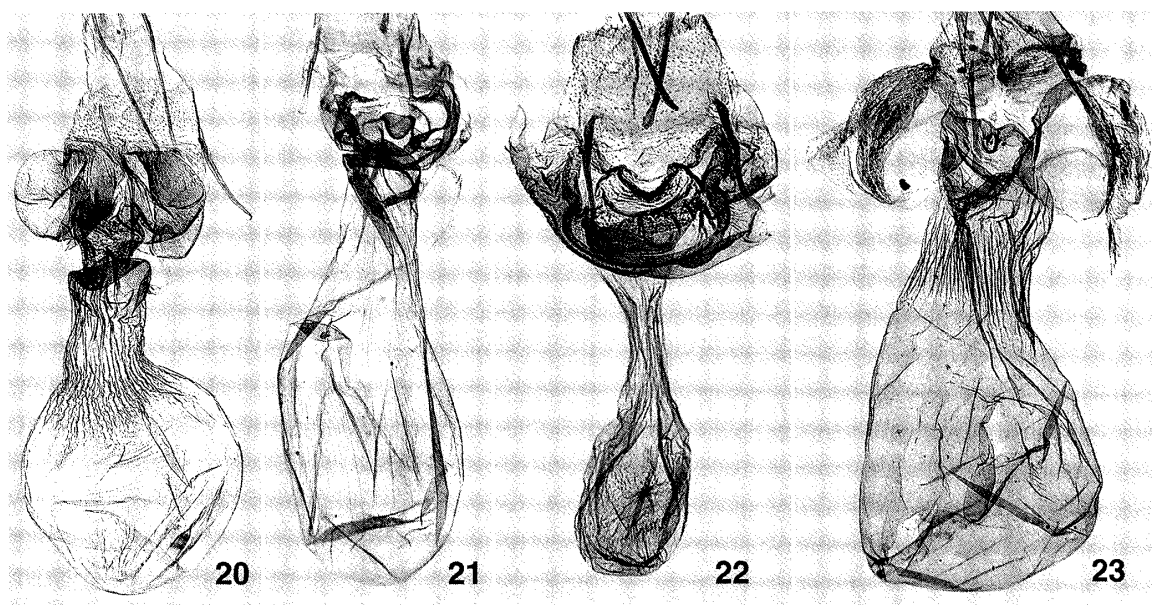
This species was described from Borneo as the sister-species to the Balinese *M. hypomoesta* (Prout) (next species) by Holloway (1994). This and the next species are both found in Sumatra.

Male genitalia (Fig. 17): Holloway (1994, fig. 581, holotype). Female genitalia (Fig. 22): illustrated here for the first time.

Type material examined. Paratype. 1 ♀, “Paratype/PT, *Monocerotesa proximesta* det. J. D. Holloway 1994/Site 13. February, Camp 2, Mulu 500 m, 401464, Mixed dipt. for. MV-understorey/SARAWAK: Gunung Mulu Nat. Park, R. G. S. Exped. 1977-8, J. D. Holloway et



Figs 12–17. Male genitalia of *Monocerotesa* spp. 12. *M. strigata* (Warren). Sikkim. RS-7034. 13. *M. comissa* (Prout). Sulawesi. RS-7007. 14. *M. minuta* (Warren). Sumatra. RS-5170. 15. *M. hypomoesta* (Prout). Sumatra. RS-7024. 16. *M. locoscripta* Holloway. Sumatra. RS-5171. 17. *M. proximesta* Holloway. Borneo. RS-7006.
 Figs 18, 19. Genitalia of *Monocerotesa sumatrana* sp. nov. 18. ♂, holotype. Sumatra. RS-6105. 19. ♀, paratype. Sumatra. RS-7021.



Figs 20–23. Female genitalia of *Monocerotesa* spp. 20. *M. comissa* (Prout). Sumatra. RS-6244. 21. *M. minuta* (Warren). Borneo. RS-7016. 22. *M. proximesta* Holloway. Sumatra. RS-7015. 23. *M. locoscripta* Holloway. Mindanao. RS-7025.

al., B.M.1978-206/Geometridae genitalia slide No. 16467 ♀”, BMNH. Genitalia checked. I also checked the male genitalia slides of the holotype (No. 12704) and the paratype (No. 16355) in BMNH.

Material examined. Sumatra. Holzweg II 1,050 m, 1 ♂, 22–24. vii. 1985, 1 ♂, 29–30. vii. 1985, 2 ♂, 31. vii–1. viii. 1985 (R. Sato), 1 ♂, 20. v–22. vii. 1985 (E. W. Diehl), NIAES. 1 ♂, Holzweg II 1,050 m, 29. v. 1986, 1 ♂, 1. vi. 1986, 1 ♂, 6. ii. 1992, 1 ♀, 24. ix. 1995 (E. W. Diehl), Holzweg III 1,150 m, 1 ♂, 21–31. vii. 1984, 1 ♂, 5. vi. 2000 (E. W. Diehl), MS. N. Sumatra, Ketambe, 40 km NW v. Kutatjane 300–500 m, 1 ♂, 10–18. vi. 1972 (Roesler & Küppers), ZFMK. Borneo. Sabah, Kimanis Road, 15 miles from Keningau, 1 ♂, 4. i. 2000 (K. Umetsu), NIAES.

Geographical range. Borneo, Sumatra.

Monocerotesa hypomoesta (Prout) (Fig. 8)

Chiasmia hypomoesta Prout, 1937: 188.

This species was described by Prout (1937) from East Bali based on two males (syntypes) collected at Batoeriti. I found only three males from Sumatra.

Male genitalia (Fig. 15): illustrated here for the first time. Female genitalia not examined.

Type material examined. Syntype. 1 ♂, “Batoeriti, E. Bali, 3500’, June 1935, (J. P. A. Kalis)/Rothschild Bequest B.M.1939-1/Geometridae genitalia slide No. 16368 ♂”, BMNH. Genitalia checked.

Material examined. Sumatra. Berastagi 1,300 m, 1 ♂, x. 1989 (Arbaimun), Mt Sibayak II, 1 ♂, 4. v. 1988 (S. & A. Saito), NIAES. 1 ♂, “Sumatra sept., (Aceh Tenggara), Gunung Leuser, 3°53’2”N/ 97°8’2”E, ‘Alas-Biwak’ 2,200 m, 26. ii. 1997, leg. Plössl & Tarmann”, MS.

Geographical range. Sumatra, Bali.

***Monocerotesa locoscripta* Holloway (Fig. 9)**

Monocerotesa locoscripta Holloway, 1994: 272.

This species was described from Borneo by Holloway (1994), based on one male holotype (pl. 17: 42) and two male paratypes collected at Gunung Mulu Nat. Park in Sarawak. Later it was recorded from Peninsular Malaysia (Holloway, 1997: 205).

Male genitalia (Fig. 16): Holloway (1994, fig. 583, paratype, BM-12705). Female genitalia (Fig. 23): illustrated here for the first time.

Material examined. Sumatra. Holzweg II 1,050 m, 1 ♂, 29–30. vii. 1985 (R. Sato), NIAES. Sumatra occ., ca 30 km östl., Tapan 1,000 m, 1 ♂, 24. ii. 1976 (M. Sommerer), MS. S. Thailand. Narathiwat Prov., vic. Sungai Kolok, Hala-Bala Wildlife Sanctuary, date unknown (Chaiwat Pramual), ZFMK. Philippines. Mindanao Is., Bukidnon, Mt Kitanglad, 1 ♂ 2 ♀, 15–18. viii. 1999 (native collector), Bukidnon, 45 km NW Maramag, Mt Binansilang 1,200 m, 1 ♂, 2. x. 1988 (Cerny & Schintlmeister), NIAES.

Geographical range. Thailand, Peninsular Malaysia, Borneo, Sumatra, Philippines (Mindanao).

***Monocerotesa sumatrana* sp. nov. (Figs 10–11)**

Length of forewing 10–12 mm, wingspan 18–21 mm. Similar to *M. radiata* (Warren, 1897) from India in wing colour and markings, but much smaller in size (*radiata*: length of forewing 15–16 mm, wingspan 26–28 mm). Both wings with more contrast between yellow and black areas, and with more defined maculation.

Male genitalia (Fig. 18). Uncus broad, triangular, without any processes. Valva cucullus strongly expanded, with a setose rounded process; a small spur-like process medially; ventral margin deeply incurved, not forming a distinct saccular spur. Aedeagus with an apical slender projection.

Female genitalia (Fig. 19). Sterigma with a pair of broad sclerotized parts laterally. Bursa copulatrix slender, lightly ribbed except for anterior extremity, posterior one-fifths strongly sclerotized.

Holotype. ♂, N. Sumatra, 30 km SW Siantar, Holzweg II 1,050 m, 21. ix. 1985 (E. W. Diehl), genitalia slide RS-6105, ZSM after further study, at present in MS. Paratypes. N. Sumatra, Holzweg II 1,050 m, 1 ♀, 4. ii. 1991, 1 ♀, 2. x. 1992; Holzweg 2A 1,100 m, 1 ♀, 13. ii. 1996; Holzweg III 1,150 m, 1 ♀, 25. vii. 1985, genitalia slide RS-7021 (E. W. Diehl), ZSM after further study, at present in MS.

I examined a pair of the syntypes of *Chiasmia radiata* Warren to compare with this new species. 1 ♂, “Khasis Nat. Coll./*radiata* Warr. ♂/99-284/Geometridae genitalia slide No. 16371”, BMNH. Genitalia checked. 1 ♀, “Khasis, May 1896, Nat. Coll./Type/*Chiasmia radiata* Warr. Type ♀/Rothschild Bequest B.M.1939-1”, BMNH.

Geographical range. Sumatra.

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摘 要

スマトラの *Monocerotesa* 属 (シャクガ科, エダシャク亜科) (佐藤力夫)

Holloway (1994) は、ボルネオから *Monocerotesa* 属 4 種を記録し、そのうち *minuta* の分布域に疑問符を付して Sumatra を加えているが、同島からこれまで確実な本属の記録はなかった。本報では、故 Dr E. W. Diehl (Sumatra) と Mr M. Sommerer (Munich) の採集品を中心に、筆者自身が 1985 年に採集した標本も加えて検討し、1 新種を含む 6 種を確認することができた。同定にあたっては、イギリス自然史博物館 (BMNH) にある関連するタイプ標本を交尾器を含めて調査した。

M. commissa (Prout). Borneo から *M. strigata* (Warren) (Sikkim) (属のタイプ種) の亜種として記載され、Holloway (1994) もそれに従っているが、タイプ標本を比較した結果、外観、雌雄交尾器に明らかな差異が認められるので、種に昇格した。

M. minuta (Warren) (雌交尾器初図示), *M. proximesta* Holloway (雌交尾器初図示), *M. hypomoesta* (Prout) (雄交尾器初図示), *M. locoscripta* Holloway (雌交尾器初図示)。

M. sumatrana Sato. 新種として記載. 現時点で Sumatra 以外からは未知.

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